

General Description

The CMN2305AM uses advanced trench technology to provide excellent $R_{DS(ON)}$. This device is suitable for use as a load switch or in PWM applications.

Features

- $R_{DS(ON)} < 42\text{m}\Omega$ @ $V_{GS} = -4.5\text{V}$
- $R_{DS(ON)} < 60\text{m}\Omega$ @ $V_{GS} = -2.5\text{V}$
- Surface mount package
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 8	V
$I_D @ T_A = 25^\circ\text{C}$	Continuous Drain Current	-4.5	A
$I_D @ T_A = 70^\circ\text{C}$	Continuous Drain Current	-3.5	A
I_{DM}	Pulsed Drain Current	-20	A
$P_D @ T_A = 25^\circ\text{C}$	Total Power Dissipation	1.4	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	89	$^\circ\text{C/W}$

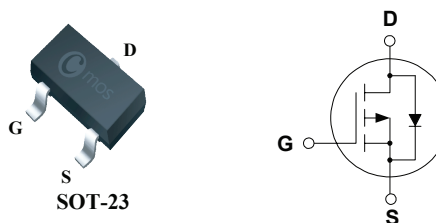
Product Summary

BVDSS	$R_{DS(ON)}$	I_D
-20V	42m Ω	-4.5A

Applications

- PWM applications
- Load switch
- Power management
- PA Switch

SOT-23 Pin Configuration



Type	Package	Marking
CMN2305AM	SOT-23-3L	A5M

P-Channel Enhancement Mode Field Effect Transistor

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5V$, $I_D=-3.9A$	---	36	42	m Ω
		$V_{GS}=-2.5V$, $I_D=-2A$	---	48	60	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-0.3	---	-1	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-16V$, $V_{GS}=0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 8V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V$, $I_D=-1A$	---	5	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1MHz$	---	8	---	Ω
Q_g	Total Gate Charge	$I_D=-4A$	---	13	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=-10V$	---	1.2	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=-4.5V$	---	3.6	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-10V$ $R_{GEN}=3\Omega$ $R_L=2.5\Omega$ $V_{GS}=-4.5V$	---	13	---	ns
T_r	Rise Time		---	21	---	
$T_{d(off)}$	Turn-Off Delay Time		---	93	---	
T_f	Fall Time		---	46	---	
C_{iss}	Input Capacitance	$V_{DS}=-10V$, $V_{GS}=0V$, $f=1MHz$	---	1100	---	pF
C_{oss}	Output Capacitance		---	120	---	
C_{rss}	Reverse Transfer Capacitance		---	110	---	

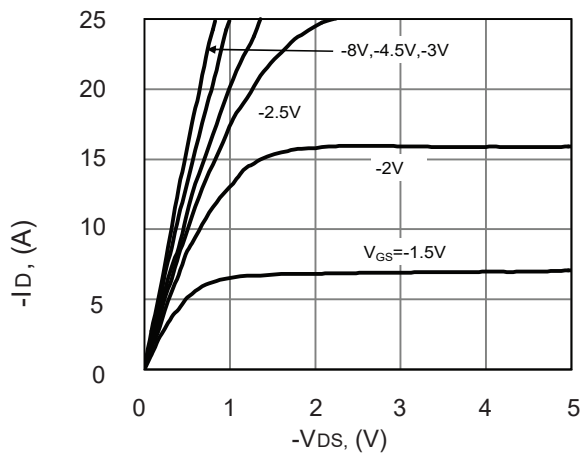
Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=-0.75A$	---	-0.77	-1.5	V

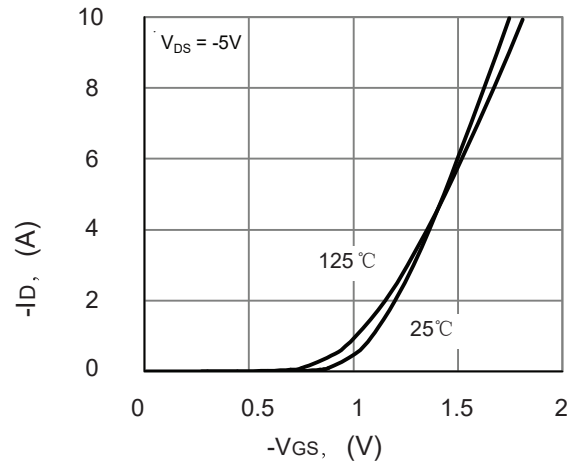
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P-Channel Enhancement Mode Field Effect Transistor

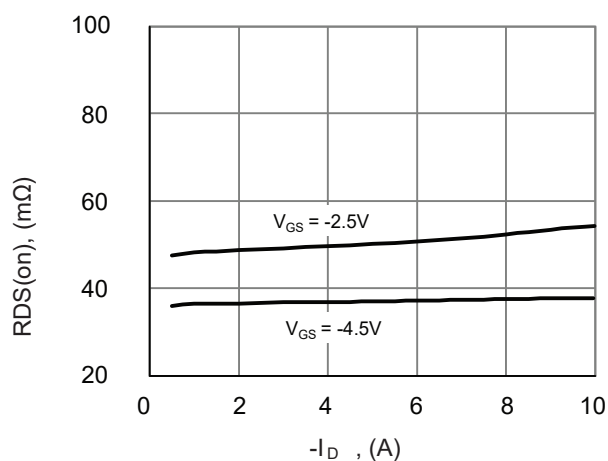
Typical Characteristics



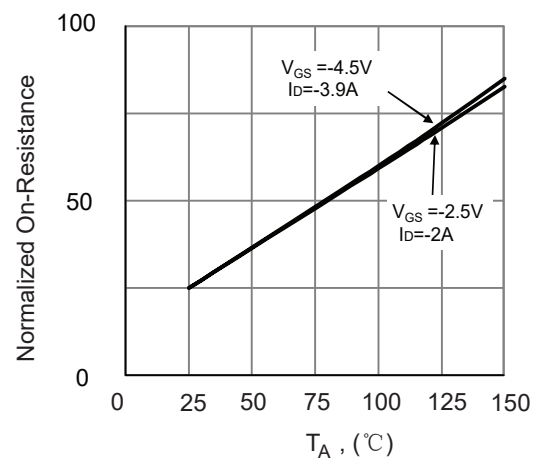
Typical Output Characteristics



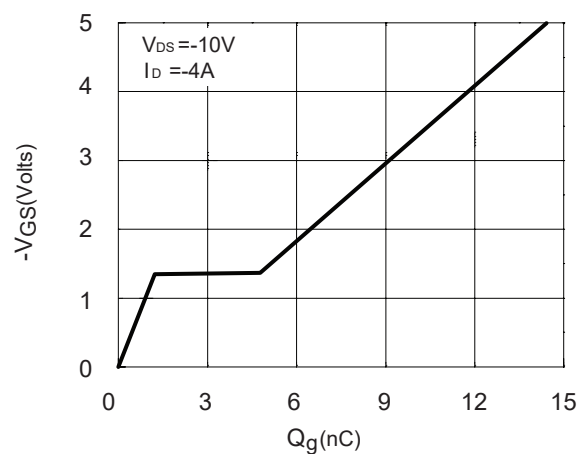
Transfer characteristics



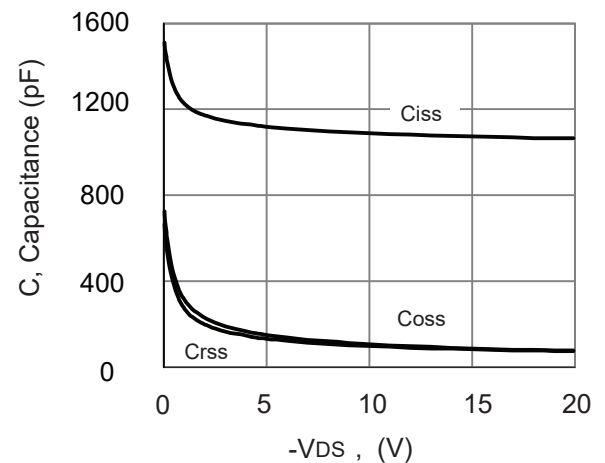
On-Resistance vs. Drain Current



On-Resistance vs. Ambient temperature



Gate Charge Characteristics



Capacitance Characteristics